

CLAIMS

1. A personal identification device comprising a light source for illuminating light to a target to be identified, and a light receiving element row containing a plurality of light receiving elements which receive the light illuminated from said light source, wherein information representing a living body feature of said target to be identified is produced from outputs of said light receiving element row, thereby performing personal identification based on the produced information.

2. A personal identification device comprising a light source for illuminating light to a target to be identified, and a light receiving element row containing a plurality of light receiving elements which receive the light illuminated from said light source, wherein when said target to be identified is relatively scanned with respect to said light receiving element row, a two-dimensional image representing a living body feature of said target to be identified is produced from outputs of said light receiving element row and relative displacement information of said target to be identified, thereby performing personal identification based on the produced image.

3. A personal identification device comprising an infrared source for illuminating an infrared ray to a target to be identified, and a light receiving element row containing a plurality of light receiving elements which receive the infrared ray illuminated from said infrared

source, wherein when said target to be identified is relatively scanned with respect to said light receiving element row, a two-dimensional image representing a blood vessel pattern of said target to be identified is produced from outputs of said light receiving element row and relative displacement information of said target to be identified, thereby performing personal identification based on the produced image.

4. The personal identification device according to Claim 3, wherein said target to be identified is a human hand or finger.

5. The personal identification device according to any one of Claims 2 to 4, wherein said light receiving element row contains a plurality of light receiving elements arranged in line.

6. The personal identification device according to any one of Claims 2 to 5, wherein a position detecting device for detecting a position of said target to be identified is disposed, and said two-dimensional image of said target to be identified is produced from the outputs of said light receiving element row and position information from said position detecting device.

7. The personal identification device according to any one of Claims 2 to 5, wherein an identified-target detecting device for detecting the presence or absence of said target to be identified is disposed in a position away from said light receiving element row.

8. The personal identification device according to Claim

7, wherein said identified-target detecting device is disposed in plural, a speed of said target to be identified is computed from a difference between passage times of one end of said target to be identified, which are detected by said plurality of identified-target detecting devices, and distance correction of said image in a scan direction is performed based on the speed of said target to be identified.

9. The personal identification device according to Claim 7, wherein a speed of said target to be identified is computed from a difference between passage times of one end of said target to be identified, which are detected by said light receiving element row and said identified-target detecting device disposed one or in plural, and distance correction of said image in a scan direction is performed based on the speed of said target to be identified.

10. The personal identification device according to any one of Claims 2 to 5, wherein said light receiving element row contains a plurality of light receiving elements arrayed along a straight line.

11. The personal identification device according to any one of Claims 2 to 5, wherein said light receiving element row contains a plurality of light receiving elements arrayed along a curved line.

12. The personal identification device according to any one of Claims 2 to 5, wherein said light receiving element row comprises a plurality of light receiving element rows, and said plurality of light receiving element rows are arranged along a curved line.

13. The personal identification device according to any one of Claims 10 to 12, wherein an interval between two adjacent light receiving elements in said light receiving element row is from 0.02 mm to 0.5 mm.

14. The personal identification device according to Claims 2 to 5, wherein said light receiving element row is provided with a filter member allowing transmission of only a component of incident light, which substantially perpendicularly enter said light receiving element row.

15. A personal identification device comprising a casing, and a light source and a light receiving element row both disposed in said casing, said device operating such that when a finger is inserted in said casing, the light from said light source is illuminated to the finger, the light having passed through the finger is detected by said light receiving element row, and a blood vessel pattern of the finger is produced from outputs of said light receiving element row, thereby performing personal identification based on the produced blood vessel pattern, wherein said casing has a cavity in which the finger is inserted, and said light receiving element row is arranged perpendicularly to a direction of depth of said cavity.

16. A personal identification device comprising a C-shaped support member including a first member, a second member and a third member for connecting said first and second members to each other, an infrared source mounted to said first member, and a light receiving element row mounted to said second member, said device operating such that when

a finger is scanned over said light receiving element row, an infrared ray from said infrared source is illuminated to the finger, the infrared ray having passed through the finger is detected by said light receiving element row, and a blood vessel pattern of the finger is produced from outputs of said light receiving element row, thereby performing personal identification based on the produced blood vessel pattern.

17. A personal identification device comprising a bottom member, a frame member disposed to surround said bottom member from three sides thereof, an infrared source mounted to said frame member, and a light receiving element row mounted to said bottom member, said device operating such that when a finger is scanned over said light receiving element row, an infrared ray from said infrared source is illuminated to the finger, the infrared ray having passed through the finger is detected by said light receiving element row, and a blood vessel pattern of the finger is produced from outputs of said light receiving element row, thereby performing personal identification based on the produced blood vessel pattern.

18. A personal identification device comprising a casing, and an infrared source and a light receiving element row both disposed in said casing, said device operating such that when a finger is inserted in said casing, an infrared ray from said infrared source is illuminated to the finger, the infrared ray having passed through the finger is detected by said light receiving element row, and a blood

vessel pattern of the finger is produced from outputs of said light receiving element row, thereby performing personal identification based on the produced blood vessel pattern, wherein said casing has a smooth inner surface to prevent a part of the infrared ray from said infrared source, which has been reflected by the finger, from entering said light receiving element row.

19. The personal identification device according to any one of Claims 1 to 18, wherein personal identification is performed by comparing a previously registered feature parameter and a feature parameter of an image obtained from the outputs of said light receiving element row.

20. The personal identification device according to Claim 6, wherein said position detecting device is provided with a button capable of being pushed by the finger, cleaning means is mounted to said button, and a surface of said light receiving element row is cleaned with scan of said button.